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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,458	05/15/2001	Patrick Denis Lincoln	SRI/4361	9224

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EXAMINER	
SMITH, CAROLYN L	
ART UNIT	**PAPER NUMBER**
1631	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/855,458	LINCOLN ET AL.	
	Examiner	Art Unit	
	Carolyn L. Smith	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *96,98,100 and 102-104* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *96,98,100 and 102-104* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendments and remarks, filed 11/14/06, are acknowledged. Amended claim 96 and cancelled claims 1-95, 97, 99, 101, and 105-125 are acknowledged.

Applicant's arguments, filed 11/14/06, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from the previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 96, 98, 100, and 102-104 are herein under examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 96, 98, 100, and 102-104 are rejected under 35 U.S.C. 102(b) as being anticipated by Thalhammer-Reyero (US 5,980,096).

This rejection is maintained.

Thalhammer-Reyero discloses a hardware and software environments for their systems, graphical interfaces, and methods for graphic information storage and retrieval, visual modeling,

and dynamic simulation of complex biochemical systems that can encode modeling and simlulation knowledge in sets of icons connected in schematics (col. 4, lines 59-67; col. 8, lines 56-67; and col. 18, lines 13-19) as well as processor and program means (claim 72) which represents an article comprising machine-readable media having encoded thereon a model of a biological system and software configured to cause a processor to run a method (as stated in instant claim 96). Thalhammer-Reyero discloses representing characteristics of biochemical and cellular entities in the form of symbols, building blocks with each object containing a set of slots (i.e. symbols), as well as the parallel and serial sets of processes in which they interact (col. 5, line 63 to col. 6, line 6 and col. 6, lines 45-55), intracellular signaling pathways and lists of cell types containing certain molecules (col. 10, lines 46-50 and col. 54, lines 6-9), sets of icons, including component icons (abstract), modeling sets of processes and their participants (col. 1, second paragraph; col. 5, first paragraph), integrating sets of building blocks (col. 6, line 10), using diverse sets of objects (col. 13, fourth paragraph; col. 21, last paragraph; col. 25, second paragraph), and multiple input links and multiple linked reactants (claims 53 and 72), and simultaneously analyzing multiple experimental parameters (third to last paragraph) which represents a multi-set of symbols representing one or more biological elements of a biological system in an initial hypothetical state and first and second sets of symbols from cells. The list of cells containing certain molecules (col. 10, liens 46-50) also represents one or more symbols in a first set being in a second set. Thalhammer-Reyero discloses that these entities represented by icons may participate in synthesis, degradation, modifications, interactions and translocation processes and can change dynamically at run time (col. 6, lines 30-39). Thalhammer-Reyero discloses inference engines that search for and execute relevant rules and methods that comprise

rules and procedures that are object-oriented and applied to the bioObjects as well as creating and modifying models as needed based on experimentation based on these rules and interactions involving alternatives (abstract, col. 3, lines 59-62; col. 6, lines 39-45; and col. 10, lines 1-24) which represents substituting symbols, rules representing interactions between biological elements, and an inference engine to process rules for initial and alternative (modified) states. Thalhammer-Reyero discloses describing characteristics of objects as symbols with text, values, variables, or other attributes (col. 6, lines 50-62) which represents the symbols being typed, as stated in instant claim 102. Thalhammer-Reyero discloses objects within classes as well as chemical processes and their participants arranged in hierarchies (col. 5, lines 1-16 and col. 6, lines 63-67) which represents an organization of hierarchical classes, as stated in instant claim 103. Thalhammer-Reyero discloses class hierarchy and performing methods attached to an object's class (col. 4, lines 1-11) which represents a symbol (object) being matched by another symbol (object) that is a member of the hierarchical class, as stated in instant claim 104. Thalhammer-Reyero discloses units of all variables in all bioPools connected to the same bioprocess have to be appropriately matched (col. 58, lines 58-62) which represents a symbol being matched to another symbol that is a member of the hierarchical class, as stated in instant claim 104. Thalhammer-Reyero discloses mathematical models, manipulating data via operations, using methods associated with component icons and interconnecting each pool to several processes, using functions and graphical interfaces associated with each icon (abstract and col. 15, lines 32-34), and modes of operation and display including rule processing and relationships as well as formulas and functions (col. 37, lines 43-51) which represent one or more rules comprising an operator for expressing a relationship between biological elements and

conforming to associative and commutative properties, as stated in instant claim 96. Thalhammer-Reyero discloses concurrently monitoring thousands of variables (col. 4, lines 23 and 39-40; col. 18, lines 35-37) and executing rules and procedures to implement different strategies concurrently over time supporting symbolic expression (col. 19, lines 18-25) which represents rules expressing concurrent state transitions, as stated in instant claim 98. Thalhammer-Reyero discloses iterating the process (col. 9, lines 57-59) which represents that some of the rules are not terminating. Thalhammer-Reyero discloses programming the models into networks of interacting pathways including feedback and forward loops (col. 6, lines 20-24), as stated in instant claim 100. Thalhammer-Reyero discloses a function involving an "if...then" statement (col. 52, lines 1-7) which represents a rule that is conditional. Thalhammer-Reyero discloses symbols representing entities participating in pharmacological reactions (col. 5, line 66 to col. 6, line 6 and col. 6, line 54) and pharmacological or other experimental molecules added to the system from an external environment (col. 59, lines 4-6) which represents symbols that represent exogenous agents. Thalhammer-Reyero discloses an inference engine that receives input from a user (col. 19, lines 28-34), iterating the process (col. 9, lines 57-59), inference engines that search for and execute relevant rules and methods that comprise rules and procedures that are object-oriented and applied to the bioObjects as well as creating and modifying models as needed for experimentation based on these rules and interactions involving alternatives (abstract, col. 3, lines 59-62; col. 6, lines 39-45; and col. 10, lines 1-24; and Tables 54-55) which represents substituting symbols, rules representing interactions between biological elements, and an inference engine to process rules for initial and alternative (modified) states which simulates a biological reaction/system, as stated in instant claim 96. Thalhammer-Reyero

discloses the use of a second set of variables (col. 60, lines 23-29) that represents a second set for a second state of a biological system. Thalhammer-Reyero discloses comparing two lists of bioReservoirs and bioEntities (symbol sets), loops over all entities from a bioReservoirs and scans connections to certain classes (col. 96, lines 45-51; col. 97, lines 40-65; and col. 100, lines 23-57) which represents comparing a second set to one of the alternate states (as mentioned above). Thalhammer-Reyero discloses scanning the density value of the bioReservoir according to a symbolic value of the abundance attribute in a normal state and then the inference engine scans values of other sources in alternative states to compare to a threshold parameter (col. 107, lines 7-67; col. 112, lines 30-33; Tables 56 and 58; Figures 27-28) as well as initial conditions of basal quantity such that scaled-value set of variables are constrained not to be less than 0 and only activating and deactivating certain groups (col. 113, lines 13-35) which represents maintaining value if it exceeds the threshold parameter. Thalhammer-Reyero discloses outputting results and displaying graphs (Figures 4, 15, 17; col. 17, lines 42-45; col. 22, last paragraph; col. 45, last paragraph), modeling pathways and integrating outputs (col. 76, line 30, col. 78, first two paragraphs; Figure 16) with products that are outputs of the pathway (col. 86, fifth paragraph) which represents providing an output of a terminal state or alternative states, as stated in instant claim 96. Thalhammer-Reyero discloses modeling that predicts experimental outcomes (col. 3, first paragraph), identifying chemical entities involved in a system and predicting effects of perturbations on a system (col. 9, lines 18-45) and a system, graphical interface, and methods for interpreting characteristics of chemical entities in pharmaceutical reactions, including how they interact and are regulated (col. 5, line 63 to col. 6, line 6) along with graphic models to allow for more targeted navigation and exploration (col. 36, second

paragraph) and information about substrates or groups targeted by an enzyme (col. 54, lines 27-29) which represents outputting that is indicative of drug target identification, as stated in instant claim 96.

Thus, Thalhammer-Reyero anticipates the instant invention.

Applicant states that instant claim 96 has been amended to recite that an inference engine receives a multiset of symbols and provides a definition of "set". Applicant states that sets and multisets represent two distinct mathematical approaches described in the present application for modeling biological systems, and that Thalhammer-Reyero does not recite this claimed multiset. In response to applicant's argument that the reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a distinct mathematical approach between sets and multisets) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is also noted that the instant specification does not provide a clear and concise definition of "multiset" so that it has been broadly and reasonably interpreted to mean more than one set. Applicant's arguments are deemed unpersuasive for the reasons set forth above.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

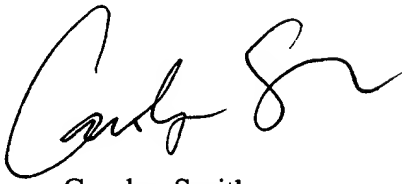
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The Central Fax Center number for official correspondence is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached on (571) 272-0811.

January 22, 2007



Carolyn Smith
Examiner
AU 1631